

# WHAT IS CLAIMED IS:

1. A fuel injector arranged in the intake pipe of a port injection type internal combustion engine, which the fuel is injected from the injection port in two directions, wherein the flow rate distribution of the fuel injected from the injection port which passes the section at a specific position of the downstream from the injection port of said fuel injector has the characteristic that when the point that the periphery of the fuel spray close to the centralaxis of the injection port intersects with straight line L that connects respective gravities of the fuel sprays injected in two directions is assumed to be first point P1, the point that the periphery of the fuel spray far from the central axis intersects with said straight line L is assumed to be second point P2, and the point in the middle of the first point P1 and the second point P2 is assumed to be third point P3, the peak position of flow rate on said straight line L exists between said first point P1 and said third point P3, and the flow rate decreases with getting away from said peak position on said straight line L.
2. A fuel injector according to claim 1, wherein the specific position of the downstream from said injection port is at downstream 100mm of said injection port.
3. A fuel injector according to claim 1 or 2, wherein the flow rate distribution of the fuel spray injected in said two directions is almost symmetry, and integral value of the flow rate of said third point P3 from said first point P1 is 1.5 times or more as much as integral value of the flow rate of said third

point P3 from said second point P2.

4. A fuel injector arranged in the intake pipe of a port injection type internal combustion engine, which the fuel is injected from the injection port in two  
 5 directions, wherein when the flow rate distribution of the fuel spray which passes the section at a specific position of the downstream from said injection port is divided into a plurality of regions in a direction which extends from the inside of the fuel spray injected in two directions to the outside, the flow rate of each region in a direction perpendicular to said direction is integrated, and  
 10 when the point inside of the fuel spray is assumed to be first point P1, the point outside of the fuel spray is assumed to be second point P2 and the point in the middle of said first point P1 and said second point P2 is assumed to be third point P3, the peak position of said flow rate integral value exists between said first point P1 and said third point P3 and the flow rate integral value  
 15 decreases as the position gets away from the peak position.

5. A fuel injector according to claim 4, wherein the specific position of the downstream from said injection port is at downstream 100mm of said injection port.

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6. A fuel injector according to claim 4 or 5, wherein the flow rate distribution of the fuel spray injected in said two directions is almost symmetry, and integral value of the flow rate of said third point P3 from said first point P1 is 1.5 times or more as much as integral value of the flow rate of said third

point P3 from said second point P2.

7. A fuel injector arranged in the intake pipe of a port injection type internal combustion engine, which the fuel is injected from the injection port in two directions, wherein said injection port is terebrated in an axial direction inclined with respect to a center axis of said fuel injector, and when the center axis is assumed to be Z axis, the direction where the fuel spray of two directions extends is assumed to be X axis and the axis perpendicular to an X-Y plane is assumed to be Y axis, the tilt angle  $\theta$  of said injection port becomes large and the diameter of said injection port becomes small as the distance S from a Y-Z plane increases.

8. A fuel injector arranged in the intake pipe of a port injection type internal combustion engine, which the fuel is injected from the injection port in two directions, wherein said injection port is terebrated in an axial direction inclined with respect to a center axis of said fuel injector, and when the center axis is assumed to be Z axis, the direction where the fuel spray of two directions extends is assumed to be X axis, and the axis perpendicular to an X-Y plane is assumed to be Y axis, the tilt angle  $\theta$  of said injection port becomes large and the number of said injection port becomes small as the distance S from a Y-Z plane increases.